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DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

49 CFR Part 229

[Docket No. FRA-2009-0094, Notice No.5]

RIN 2130-AC39

Locomotive Safety Standards

AGENCY: Federal Railroad Administration (FRA), Department of Transportation (DOT).

ACTION: Final rule; response to petitions for reconsideration.

SUMMARY: This document responds to eight petitions for reconsideration received in relation to FRA's final rule, published on April 9, 2012, which revised the existing regulations containing safety standards for locomotives. In response to the petitions, this document amends and clarifies certain sections of the final rule.

DATES: *Effective Date:* The rule is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: Charles Bielitz, Office of Safety Assurance and Compliance, Motive Power & Equipment Division, RRS-14, Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC, (202) 493-6314 (email charles.bielitz@dot.gov), or Michael Masci, Trial Attorney, Office of Chief

Counsel, Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC, (202) 493-6037 (email michael.masci@dot.gov).

SUPPLEMENTARY INFORMATION:

I. Background

On February 22, 2006, FRA presented, and the Railroad Safety Advisory Committee (RSAC) accepted, the task of reviewing existing locomotive safety needs and recommending consideration of specific actions useful to advance the safety of rail operations. The RSAC established the Locomotive Safety Standards Working Group (Working Group) to handle this task. The Working Group met twelve times between October 30, 2006, and April 16, 2009. The Working Group successfully reached consensus on the following locomotive safety issues: locomotive brake maintenance, pilot height, headlight operation, danger markings placement, load meter settings, reorganization of steam generator requirements, and the establishment locomotive electronics requirements based on industry best practices. The full RSAC voted to recommend the consensus issues to FRA on September 10, 2009, which were incorporated into the notice of proposed rulemaking (NPRM) issued in this proceeding on January 12, 2011. *See* 76 FR 2199. The specific regulatory language recommended by the RSAC was amended slightly for clarity and consistency. FRA independently developed proposals related to remote control locomotives, alerters, and locomotive cab temperature, issues that the Working Group discussed, but ultimately did not reach consensus. *Id.* Many comments were submitted to the public docket in response to the

NPRM. The comment period closed on March 14, 2011, and after considering the public comments FRA issued a final rule on April 9, 2012. See 77 FR 21312.

In accordance with the provisions of Executive Order (E.O.) 13563, the final rule also modified the existing Locomotive Safety Standards based on what was been learned from FRA's retrospective review of the regulation. E.O. 13563 requires agencies to review existing regulations to identify rules that are overly burdensome, and when possible, modify them to reduce the burden. As a result its retrospective review, FRA determined that reductions in the burdens imposed on the industry could be achieved by modifying the regulations related to periodic locomotive inspection and locomotive headlights. FRA continues to believe that the modifications related to periodic locomotive inspection and locomotive headlights that are contained in the final rule do not reduce railroad safety.

Following publication of the final rule, parties filed petitions seeking FRA's reconsideration of some of the final rule's requirements. Petitioners included: the American Association for Justice (AAJ), the Association of American Railroads (AAR), the Central Railway MFG (CRM), D. P. Honold (Honold), David Lombardi (Lombardi), Paul, Reich & Myers, P.C. (PRM), Wabtec Corporation (Wabtec), and the ZTR Equipment Management (ZTR). The petitions filed by these parties principally relate to the following subject areas: locomotive electronics; locomotive alerters; remote control locomotives; periodic inspection of locomotives; preemption of State law; and, locomotive diesel exhaust. In addition to the issues raised in the petitions, FRA has determined that clarification or modification of the final rule is needed with respect to

placement of the air flow method (AFM) indicator calibration date on the Form 6180-49A; the duration of the remote control locomotive (RCL) audio indication; and the date by which railroads and vendors must notify FRA regarding electronic locomotive control products that are under development. This document responds to all the issues raised in the petitions for reconsideration and clarifies and amends certain sections of the final rule in response to some of the issues raised in the petitions and clarifies certain other final rule requirements.

II. Issues Raised by Petitions for Reconsideration

In response to the petitions for reconsideration, FRA is modifying the Locomotive Safety Standards final rule related to: § 229.303, Applicability of the Locomotive Electronics; § 229.305, Definition of New or Next-Generation Locomotive; § 229.140(d), Locomotive Alerters; § 229.15(b)(4), RCL Conditioning Run; § 229.15(a)(12)(xii), RCL Audio Indication; and, § 229.23(b)(2) Mechanical Inspection. FRA respectfully refers interested parties to the agency's section-by-section analysis of the final rule and the NPRM for a full discussion of those aspects of the rulemaking that remain unchanged. See 76 FR 2199 and 77 FR 21312. The following is a discussion of each of the issues raised in various petitions for reconsideration. These discussions should be read in conjunction with the specific section-by-section analysis that identifies the specific modifications or clarifications being made to the text of the final rule.

A. Locomotive Electronics

Several of the petitions request clarification or revision of certain requirements related to locomotive electronics. FRA's responses to each of the requests that were

made in the petitions are provided in this discussion and the specific regulatory changes or modifications are discussed in the section-by-section analysis. For discussion purposes, the responses have been grouped into seven general categories: (1) Responsibility and Applicability, (2) Definitions, (3) Safety Analysis, (4) Appendix F, (5) Confidentiality and Other Product Development Issues, (6) Small Businesses, and (7) Training.

I. *Responsibility and Applicability*

AAR's petition recommends that FRA "place responsibility for compliance [with the locomotive electronics requirements that are contained in part 229, subpart E (Locomotive Electronics Requirements)] on the suppliers instead of the entities merely purchasing products." According to the AAR, it "is illogical to hold railroads responsible for compliance [with the Locomotive Electronics Requirements] for products they do not produce;" and, it is ineffective to "hold railroads responsible for products developed by other companies since individual railroads will not have the complete picture of problems or developments associated with the products."

FRA declines to adopt the AAR's recommendation to place responsibility for compliance with the Locomotive Electronics Requirements with only the suppliers and denies this portion of AAR's petition. The purpose of the Locomotive Electronics Requirements is to ensure that safety critical electronic locomotive control systems, subsystems, and components are designed, operated, and maintained to promote the safe functioning of these systems. FRA believes that both the railroads and suppliers play an

important role in ensuring the safety of these systems and that both need to be responsible for properly fulfilling their respective roles.

The final rule provides that a railroad shall develop a Safety Analysis (SA) of each product created in conjunction with safety-critical electronic control systems, subsystems, and components, *See* § 229.301(a)-(b). Section 229.7(b) of the existing regulation provides that, “any person (including but not limited to a railroad; any manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacture, lessor, lessee, or independent contractor)” who violates any requirement of part 229 or of the Locomotive Inspection Act or causes the violation of any such requirement can be subject to civil penalties to the same extent as the railroad. Thus, the onus of responsibility for ensuring safety compliance does not lie solely on the railroads. Compliance is a responsibility shared between the railroads, suppliers, manufacturers, and contractors to ensure the safe handling and functioning of locomotives for industry employees and the public.

For enforcement purposes, FRA retains the authority to determine which entity is more culpable for non-compliance related to a specific product and focus enforcement efforts on that entity or a group of entities. The determination would be based on a fact specific analysis that weighs each entity’s role in the non-compliance. However, FRA retains the authority and discretion to hold each and every entity responsible for non-compliance, as provided for in § 229.7(b).

While FRA does acknowledge that the supplier will most likely prepare the initial SA for the product, it is the railroad that makes the final determination of where, when, and how a supplier's product is used. The supplier may, or may not, be fully aware of the manner in which the product is used, nor can it ensure that a product is being used within the design limitations laid out for the product. If, for a given product, the railroad always utilizes the supplier's product within the design limitations as laid out in the SA, implements all of the suppliers design changes as they occur, and does not implement third-party changes that are outside the scope of the SA, then no action would be required by the railroad. The SA would either remain unchanged as in the first case, or would have been updated by the supplier or third-party in the later cases when the supplier or third-party implemented the product change.

Only the railroad would know if they choose not to implement all product design changes specified by a manufacturer, choose to implement additional third party changes to the supplier's product, or choose to use the product in a manner not foreseen in the supplier's SA. If such choices are made by a railroad, the railroad would be responsible for ensuring the safety of the product. To comply with these requirements, the railroad may choose to make the changes to the SA to address the changes themselves, it may have the supplier revise the SA to account for the railroad's actions, or it may have a third-party revise the SA to address the differences between the railroad's actual use and the suppliers design use.

Section 229.307(a) of the final rule requires that the railroad develop the SA for a product prior to its use. The railroad is not prohibited from delegating authority for

creating or modifying the SA. While a supplier may have contractual obligations to a railroad for providing and maintaining a product that meets a minimum level of safety designated by the railroad, it is ultimately the railroad that makes the determination to: accept or reject the product; place the product in use; and, maintain the product in such a manner to ensure the safety and integrity of the product. FRA recognizes the possibility exists that a supplier may discontinue support for its product for any number of reasons. For example, the supplier may leave the market place. Such an action by a supplier does not preclude the railroad from continuing to operate and maintain the product despite the lack of a responsible supplier. In such a situation, while the railroad remains responsible for the SA, there is no requirement that it modify the SA as provided for in the regulation, electing to have the changes made by a third-party. It is only in the situation where there is no vendor or third-party available that the railroad alone must execute necessary changes to the SA.

Similarly, § 229.309(a) of the final rule places responsibility on the railroad for product changes that are accepted by a railroad. As with § 229.307(a), § 229.309(a) does not prohibit the railroad from delegating responsibility for the SA changes to the supplier or a third party designated by the railroad. FRA recognizes that the supplier is in the best position to aggregate reported product failures and safety hazards. However, the individual railroads that are using the product are in the best position to note the occurrence of a product failure. During operation, when a safety hazard exists, it is also the railroad that is utilizing the product that is best able to determine what immediate

actions are necessary to ensure the safety of the crews and public pending final resolution of the problem by the supplier.

Suppliers and other parties are required to aggregate and report problems associated with a product to the railroads, so the railroads may determine what the appropriate course of action is to take in their specific circumstances. See § 229.309(b) and (c). Suppliers that fail to make these reports to the potentially affected railroads are potentially subject to enforcement action by FRA. FRA believes that actions by suppliers and other parties that amount to hidden recalls are unacceptable. Such actions place individual railroads in an untenable position.

FRA also discourages duplicate submissions of SAs for the same product. There is no requirement to submit a SA to FRA unless one is specifically requested by FRA. Indeed, § 229.311(a) was clearly intended to not require action by FRA. The SA is assumed to have been reviewed and approved by the railroad. FRA does not believe the requirement that the railroad review and approve the SA to be especially onerous, and believes that it reflects what would be appropriate risk mitigation actions by the railroad. FRA finds it extremely unlikely that a railroad would knowingly use a supplier product without understanding the potential hazards and limitations of a product- information that would be specifically detailed in the SA. FRA also believes that the railroad will maintain the SA for the life of the product's use on the railroad. The information in the SA will provide a written record of a products design and safety limitations and hazards to all personnel not intimately involved with the initial acquisition.

In its petition, Wabtec requests that the final rule be changed to eliminate § 229.303(c). According to Wabtec, the railroad and the supplier should not be responsible for evaluating whether products or product changes will result in degradation of safety, or a material increase in safety-critical functionality. FRA believes that it is the responsibility of the railroad and the supplier to evaluate all products with regards to their safety functionality irrespective of the presence or lack of a prior formal SA as required by this regulation. Product changes must be evaluated to determine if they change the level of safety provided, and if the change is such that it results in degradations in safety, or an increase in safety functionality, the product should be formally evaluated and documented in a SA. FRA declines to make any change based on the Wabtec request and denies this portion of Wabtec's petition.

Wabtec also requests that the final rule be changed to exempt products that undergo minor changes from the SA requirements contained in subpart E. As stated in the preamble to the final rule, "products with slightly different specifications that are used to allow the gradual enhancement of a product's capability do not require a full safety analysis." *See* 77 FR 21331. FRA's intent in the final rule is not to require a full SA for minor product changes or enhancements. However, FRA remains concerned that a series of minor changes over time may result in a major change in functionality from that initially defined and justified in the original SA. As a consequence, FRA does not agree with providing a general exemption as requested by Wabtec and denies Wabtec's petition on this issue. At some point, cumulative changes over time may require a new SA to be developed.

a. Section 229.303(a)(1)

In its petition, Wabtec requests that FRA clarify the language contained in § 229.303(a)(1) of the final rule, which states that “products that are in service prior to June 8, 2012” are exempt from the locomotive electronics requirements contained in subpart E. According to Wabtec, the exemption should apply to products that have been fully developed prior to June 8, 2012. FRA agrees that it intended the final rule to cover products that are fully developed by June 8, 2012, although the products may not yet be in service and agrees to change the language contained in § 229.303(a)(1) to clarify the intent of the final rule. Thus, FRA grants Wabtec’s petition in this regard and this document changes the language contained in § 229.303(a)(1) of the final rule to state that “products that are fully developed prior to June 8, 2012” are exempt from the locomotive electronics requirements contained in subpart E.

b. Section 229.303(a)(2)

Wabtec’s petition also requests that FRA clarify the language contained in § 229.303(a)(2) of the final rule, which states that “products that are under development as of October 9, 2012, and are placed in service prior to October 9, 2017” are exempt from the locomotive electronics requirements contained in subpart E. According to Wabtec, the exemption should apply to products that have been fully developed prior to October 9, 2017. FRA agrees that it intended for the final rule to cover products that are fully developed by October 9, 2017, even though they may not be in service as of that date and agrees to change the language contained in § 229.303(a)(2) to clarify the intent of the final rule. Thus, FRA grants Wabtec’s request and this

document modifies the language contained in § 229.303(a)(2) to state that “products that are fully developed prior to October 9, 2017” are exempt from the locomotive electronics requirements contained in subpart E.

2. Definitions

The AAR requests that FRA clarify the definition for the term “new or next-generation locomotive” that is provided in § 229.305 of the final rule. According to the AAR, a definition is provided for the term, but the term is not used in subpart E and that there is no need to define a term, if it is not used in the subpart. FRA agrees, grants AAR’s petition in this regard and removes the term “new or next-generation locomotive” from § 229.305 in this document.

ZTR requests that FRA clarify the definition of the term “safety-critical” as it is used in the final rule. FRA believes that the definition that is provided in § 229.305 of the final rule is clear and believes that ZTR’s petition fails to explain the definition’s lack of clarity. In its petition, ZTR simply states that the definition of “safety-critical” is not clear to ZTR, when it considers its entire product line, including systems and subsystems. FRA’s understanding is that generally, locomotive manufacturers consider their product to be the entire locomotive. This includes systems and subsystems. In this situation, the manufacturers’ extensive knowledge of the product allows them to conduct a safety analysis on the safety critical elements, including locomotive control systems. Similarly, major suppliers to locomotive manufacturers are also familiar with their own products. They too can clearly identify the safety critical elements and conduct the safety analysis accordingly. Safety-critical electronic systems include, but would not be limited to:

directional control; graduated throttle or speed control; graduated locomotive independent brake application and release; train brake application and release; emergency air brake application and release; fuel shut-off and fire suppression; alerters; wheel slip/slide applications; audible and visual warnings; remote control locomotive systems; remote control transmitters; pacing systems; and speed control systems.

While these provide general examples, any specific item must be considered in the context of its use. For example, fuel injectors might possibly be considered as providing “fuel shut off.” However, in the context of the entire locomotive, they do not act as the primary means of “fuel shut off,” but rather are an element of the engine, the fuel to which is controlled by a separate independent control system. In this situation the injector’s would clearly not be safety-critical, while other elements of the fuel control system may. FRA believes that manufacturers are capable of determining which elements of their product line contain safety critical elements, and which ones do not. As such, FRA denies this portion of ZTR’s petition and declines to change the definition of “safety critical.”

Wabtec requests that FRA revise the definition of the term “product” that is contained in § 229.305 of the final rule to clarify what is meant by the phrase “directly related to” that is used in the definition. In the final rule, the term “product” means “any safety critical electronic locomotive control system, subsystem, or component, not including safety critical processor based signal and train control systems, whose functions are *directly related to* safe movement and stopping of the train as well as the associated man-machine interfaces irrespective of the location of the control system, subsystem, or

component.” (Emphasis added). FRA believes that the definition of the term “product” is clear and is denying this portion of Wabtec’s petition and declines to revise the definition.

The locomotive electronics requirements contained in subpart E are performance based. They are intended to address the application of products, processes, and technologies that have already been identified as well as new and emergent products, processes, and technologies not yet identified. They are also intended to address the application of products, processes, and technologies in manner different than they are currently being used. FRA believes that it is not possible to envision all possible applications of a technology and enumerate all possible products arising from that technology. FRA believes that any enumeration as requested in Wabtec’s petition would be inappropriate.

3. *Safety Analysis*

According to ZTR’s petition, due to the complexity and vastness of the certifications required by Appendix F to part 229 of the final rule, each railroad could have their own SA, and in some cases, they could conflict across the same product line. ZTR requests that FRA revise the final rule to resolve this potential conflict.

FRA agrees that there may be differences not only in a product line, but also for the same product. FRA also believes that different railroads may require different levels of detail from their suppliers. However, FRA does not see where this should be an issue for a supplier as it reflects the reality of the market place. Currently, when different railroads purchase the same products from the same vendor, each railroad may require

unique customizations to suit that railroad's business and operational needs. Different railroads may have different standards for "due diligence," and therefore, may require different degrees of granularity of the information provided by the vendor. FRA does agree that different elements of a product line may have a different SA based on the complexity of the product and its intended use by the railroad. However, FRA believes that requiring a SA which addresses the complexity and intended use of the product by a railroad is critical to ensuring that the product's safety functionality not only operates correctly, but does so in the environment which the railroad intends it to be used. This type of customized analysis becomes especially critical if different railroads desired to use the product in different manners to support the railroad's operations.

Without this type of customization, the risk exposure of the railroad, the railroad's employees, and the public, cannot be determined by either the railroad or FRA. Generally, only a single inclusive SA that addresses the different use cases for the products used by the different railroads is required. FRA would recognize as acceptable any appropriately inclusive SA done under the auspices of one railroad, or a consortium of railroads.

ZTR's petition also states that because FRA's approval of the SA is "open-ended," it is subject to interpretation by each individual reviewer and may be inconsistent. Section 229.311(b) of the final rule is intended to limit FRA's review of SAs. FRA reemphasizes that it conducts reviews of SAs on a case-by-case basis, and does not formally approve or disapprove SAs. FRA anticipates that the railroad will exercise due diligence in the design and review process prior to placing the product in use

for purposes that are outside of the scope of subpart E. A vendor's railroad customer therefore would determine the level of detail necessary in a SA to prove that they have demonstrated due diligence prior to a product change, or placing a new or next generation product in use. Because individual railroads may have different expectations as to what is required to them to demonstrate due diligences, any SA, by necessity will be subject to differing interpretations and differing degrees of granularity. This, of course, does not restrict FRA review where it appears that due diligence has not been exercised, there are indications of fraud or malfeasance, or the underlying technology or architecture represent significant departures from existing practice.

Also, as previously indicated, the locomotive electronics requirements that are contained in subpart E of the final rule are performance based, and therefore, are by their very nature somewhat open-ended. As its name implies, performance based regulation and oversight is an approach that focuses on performance, as well as the desired results and outcomes. This approach differs from the traditional, prescriptive regulatory and oversight approach in that it emphasizes what must be achieved, rather than how the desired results and outcomes must be obtained. As is the case with any such regulatory and oversight approach, a variety of different issues and concerns can exist that reflect the specific concerns of the overseeing organization. Issues that concern the frequency and nature of reviews and inspections, the style of interaction of inspectors and inspected entities, the way in which sanctions are used, and the willingness of organizations responsible for to accept alternative approaches to accomplishing the same end will differ.

In the specific context of FRA regulatory oversight, any regulatory approach must confront a fundamental issue of how tight controls should be in promoting consistency and accountability versus how much discretion should be granted in promoting flexibility and innovation. As discussed in detail below, the performance based approach to regulation moves this balance from promoting consistency and accountability under current prescriptive approaches toward a greater emphasis on flexibility and innovation. At issue for any particular regulatory situation is how that balance is being struck.

FRA fully recognizes the reality that this regulation rests on what FRA inspectors do in the field when enforcing the regulation and monitoring performance, and that this is where the potential for inequities and inconsistencies exist. FRA also recognizes that regulated entities will react negatively to the lack of predictability if performance based regulations are inconsistently interpreted. However, FRA also believes that regulated entities will see little improvement over the prior more prescriptive regulations, if performance based regulations are interpreted too narrowly in allowing for a limited range of solutions. While there is the risk that there may be some inconsistencies, FRA believes the potential benefits of greater effectiveness in reaching specific regulatory objectives, flexibility in the means of adhering to the regulation, increased incentives for innovation, and reduced costs of compliance for regulated entities far outweigh the risks of inconsistencies in the application of regulations.

ZTR's petition also requests that FRA clarify when a "grandfathered" system may have to undergo a SA due to design change. FRA clarifies as follows; FRA believes that the evaluation of a product must be done on a case-by-case basis within the context of the

proposed use of the product. Products that result in degradation of safety or a material increase in safety critical functionality are not exempt. Products with slightly different specifications that are used to allow the gradual enhancement of the product's capabilities do not require a full SA but do require a formal verification and validation to the extent that the changes involve safety-critical functions. The grandfathering provision does not apply to new or next-generation locomotive control system, which refers to locomotive control products using technologies or combinations of technologies not in use on the effective date of this regulation, products that are under development as of October 9, 2012, and are fully developed by October 9, 2017, or products without established histories of safe practice. Traditional, non-microprocessor systems, as well as microprocessor and software based locomotive control systems that are currently in use have used existing technologies, existing architectures, or combinations of these to implement their functionality are grandfathered.

Wabtec's petition notes that FRA is silent on the estimated costs of preparing and maintaining a SA that is required by the final rule. FRA believes that the requirements that are contained in subpart E related to the SA represent good engineering practice for safety-critical systems, and that the costs of such an effort are a normal part of the system design lifecycle. Meeting these requirements represents an exercise of the due diligence required on the part of the railroad and/or supplier to minimize product liability. FRA believes that by allowing for broad flexibility in the specific standards, processes, and procedures used by the railroad and vendor, the railroad and vendors can accomplish this in a manner which both satisfies good engineering practice and is consistent with the

railroads and vendors business philosophy. As such, FRA disagrees with Wabtec's petition, which alleges that the SA requirements are so inflexible that they will result in significant product cost increases or decreases in vendor profitability. FRA believes that virtually all companies developing safety critical systems currently conduct a comprehensive SA as an integral part of its products lifecycles. FRA does not specify any particular format for the SA, so there should be no additional costs for preparing documents that the suppliers are presently preparing in the normal course of their business.

4. Appendix F

In its petition, ZTR contends that there is too much room for interpretation in regards to the number and level of certifications suggested in Appendix F for any and all products. ZTR asserts that it's not clear whether 5% or 95% of these certifications will be requested, or whether they will be requested for simpler or more complex products. Contrary to ZTR's assertion, there is no requirement in the final rule for certification by the FRA, or the railroad purchasing a product for electronic systems covered by part 229. There is a requirement that the railroads "...shall develop a Safety Analysis (SA) for each product subject to this subpart prior to the initial use of such product on their railroad." The requirements contained in the final rule hold individual railroads accountable for ensuring that an appropriate SA for products that they buy has been done and the analysis is

"...based on good engineering practice and should be consistent with the guidance contained in Appendix F (emphasis added) of this part in order to establish that a product's safety-critical functions will operate with a high degree of confidence in a fail-safe manner (see 49 CFR 229.307(a) and (b))."

FRA involvement in the review process of a railroad's SA is on a case-by-case basis. See § 229.311(b) of the final rule. ZTR is correct in noting that the regulation does not specify the scope of the SA. Such specificity would be inconsistent with the performance based nature of the regulation. The scope of a SA will vary greatly depending upon the function of the product in question, the safety criticality of its elements, its implementation, and good engineering practice.

FRA notes that the use of Appendix F is not mandatory. Appendix F offers one approach to developing a SA. There are a number of equally effective or better approaches. FRA encourages railroads and manufacturers to select an approach best suited to their business model. FRA would consider as acceptable any approach that would be equal to, or more effective than, the one outlined in Appendix F. As such, FRA is denying those portions of the petitions requesting modification of the appendix and declines to revise Appendix F of the final rule.

Wabtec requests that FRA revise the final rule to standardize an approach to developing a SA and the appropriate level of human factors analysis. As FRA states in both the preamble and the rule text to the final rule, Appendix F represents only one possible set of minimum recommended practices for design and safety analysis. FRA recognizes that there may be any number of practices in use both within and outside the railroad industry that can be used to demonstrate the same or better levels of safety. FRA also recognizes that the practices and standards that should be implemented may vary depending on the safety criticality and sensitivity of the product in question. Rather than mandate that all railroads and suppliers adopt the same standards and practices for all

products, regardless of the product in question and the railroads and vendors already defined standards and processes, FRA believes it is more appropriate to outline representative general standards and requirements and address specific standards on a case-by-case basis. Therefore, FRA denies Wabtec's petition in this regard and declines to revise the final rule. That said, FRA would not be adverse to the industry's use of a specific railroad industry standard that provides the same or equivalent level of functionality, if such a standard were developed and approved by the industry.

Wabtec's petition also requests that FRA revise the final rule to specify a single applicable standard for verification and validation of products. FRA believes that the latitude granted in the final rule enables railroads and vendors to accomplish the requirements in a manner that not only satisfies the technical requirements, but also is consistent with the railroads and vendors existing business practices. FRA continues to believe that mandating a single standard without due regard to existing business practices and engineering philosophies would actually result in increased costs as well as decreased innovation. Thus, FRA denies Wabtec's petition on this issue and FRA declines to make any change to the final rule. FRA notes that it would not be adverse to the industry's use of a specific railroad industry standard that provided the same or equivalent level of functionality, if such a standard were developed and approved by industry.

5. Confidentiality and Other Product Development Issues

The petitions of both ZTR and Wabtec express concerns regarding the intellectual property protection and public disclosure of design documentation, as well as development plans without any guarantee of confidentiality. The SA and associated

documentation is primarily shared between the supplier and its railroad customer and covered by mutually agreed non-disclosure agreements. To ensure confidential treatment by FRA of business sensitive information that is provided to FRA, a request for confidential treatment should be made as instructed by 49 CFR § 209.11. Thus, FRA believes that no change to the final rule is necessary. It is the responsibility of the railroad and their suppliers to clearly designate what elements of a submission to FRA should be exempted from a public request and the basis of such an exemption.

ZTR also expresses concern that the final rule will negatively impact the nimbleness of product development for suppliers and most certainly will reduce the amount of Research and Development (R&D) invested in rail. According to the ZTR, there is already a substantial risk on the part of the supplier during the R&D stages of product development. The outcome of this ruling will require that at the beginning of the R&D cycle, the effort and cost required to understand and satisfy the SA must be clearly understood. FRA disagrees. The regulation places no restrictions on the type and nature of research and development that may be undertaken. The regulation does require that products resulting from R&D and development efforts are proactively designed and built to demonstrate they can meet an acceptable level of safety over the life of the product. Proven safety methods and techniques are used to prevent, eliminate and control hazards. Such safety considerations begin at the initial design stages of a project. Although design cannot eliminate unsafe acts by irresponsible employees, it can incorporate measures to reduce the individual's ability to take a risk.

One of the biggest challenges to life cycle safety is cost. The influences to overall project/system safety considerations have more of an impact and cost less when factored into the mix early on. Using this cost influence concept allows designers to minimize cost impact while positively influencing the safety considerations and implementations to systems and projects. However, cutting too many costs at the design level can compromise workers' safety and result in long-term economic losses associated with system downtime, on-site design repairs, and injury to workers that may result in legal action. Obviously, cutting too many corners can be more costly and unsafe than if the original budget had provided sufficient funding for life cycle safety.

According to the ZTR's petition, safety originates from certainty and therefore railroad safety requirements need to be clearly spelled out and not subject to interpretation. This knowledge would enable more intelligent decision making when evaluating and moving forward with R&D investments. It also would keep product costs to a minimum, while ensuring safety is at the forefront. Again, FRA disagrees. System safety begins the structured assessment of potential hazards and risks with the aim to design out problems at source rather than incorporate measures at a later time to deal with a problem. The approach uses systems theory and systems engineering to prevent foreseeable accidents and to minimize the result of unforeseeable accidents. Losses in general, not just human death or injury are considered. Such losses may include destruction of property, loss of mission, and environmental harm.

The design goal is the management of hazards: their identification, evaluation, elimination, and control through analysis, design and management procedures. Safety

considerations must be part of the initial stage of concept development and requirements definition. The degree to which it is economically feasible to eliminate a hazard rather than to control it depends upon the stage in system development at which the hazard is identified and considered. Early integration of safety considerations into the system development process allows maximum safety with minimal negative impact. The alternative is to design the product, identify the hazards, and then add on protective equipment to control the hazards when they occur, which is usually more expensive and less effective.

6. *Small Businesses*

According to the CRM's petition, the requirements contained in the final rule related to locomotive electronics do not take into account the limited resources of small railroad suppliers and favor conglomerate suppliers that are currently in the market place. FRA has exempted currently existing products from the requirement to create a SA and provided a grace period for products already under development and will be fully developed by October of 2017. For changes to existing products, the need for a SA has been limited to changes that result in degradations in safety or an increase in safety functionality. FRA recognizes that there may be any number of practices in use both within and outside the railroad industry that can be used to create a SA and demonstrate the same or better levels of safety. FRA also recognizes that the practices and standards that should be implemented may vary depending on the safety-criticality and sensitivity of the product in question. Rather than mandate all railroads and suppliers adopt the same standards and practices for all products, regardless of the product in question and

the railroads and vendors already defined standards and processes, FRA believes it is more appropriate to outline representative general standards and requirements and address specific standards on a case-by-case basis. To that end, FRA has indicated in both the preamble and the rule text of the final rule that Appendix F represents only one possible set of minimum recommended practices for design and safety analysis. FRA believes that the latitude granted in the final rule enables railroads and vendors to accomplish the requirements in a manner that not only satisfies the technical requirements, but also is consistent with the railroads and vendors existing business practices. FRA believes that mandating a single standard without due regard to existing business practices and engineering philosophies would actually result in increased costs as well as decreased innovation.

FRA believes that the requirements of subpart E related to the SA represent good engineering practice for safety critical systems, and that the costs of such an effort are a normal part of the system design lifecycle. Meeting these requirements represents an exercise of the due diligence required on the part of the railroad and/or supplier to minimize product liability. FRA believes that by allowing for broad flexibility in the specific standards, processes, and procedures used by the railroad and vendor, the railroad and vendors can accomplish this in a manner which both satisfies good engineering practice and is consistent with the railroads and vendors business philosophy. Thus, FRA disagrees with the assertions of CRM and continues to believe that the approaches taken in the final rule are consistent with existing good business practice and

provide necessary flexibilities to allow small business to comply with the requirements without undue hardship.

7. Training

AAR's petition requests that FRA eliminate the requirement related to training that is contained in § 229.317 of the final rule. FRA declines to eliminate the requirement for developing training based on task analysis (TA). FRA believes that the TA based training addresses a need for training that will address human factors related to the implementation of subpart E. The TA analysis provides the background, setting, and context for training. AAR appears to express concern regarding the cost of training, but fails to provide any human factors based rationale for elimination of the requirement.

TA is a fundamental methodology in the assessment and reduction of human error. The term TA can be applied very broadly to encompass a wide variety of human factors techniques. Nearly all TA techniques provide, as a minimum, a description of the observable aspects of operator behavior at various levels of detail, together with some indications of the structure of the task. These are action-oriented approaches. Other techniques focus on the mental processes, which underlie observable behavior, e.g. decision making and problem solving. These are known as cognitive approaches.

TA methods can be used to eliminate the preconditions that give rise to errors before they occur. They can be used as an aid in the design stage of a new system, or the modification of an existing system. They can also be used as part of an audit of an existing system. TA can also be used in a retrospective mode during the detailed investigation of major incidents. The starting point of such an investigation must be the

systematic description of the way in which the task was actually carried out when the incident occurred. This may, of course, differ from the prescribed way of performing the operation, and TA provides a means of explicitly identifying such differences. Such comparisons are valuable in identifying the immediate causes of an accident.

A TA is an important component of the instructional systems design (ISD) approach to training. As the ultimate purpose of a systematic approach to training design is to produce a properly trained person, the training designer must understand a job and its contents in considerable detail to design, develop and carry out effective training. If this step is not done, and done well, there will be no factual basis for development of effective, efficient instruction.

The analysis process provides information for the design and development of education/training that, in turn, is used to produce organizations that can accomplish their missions, and individuals capable of performing their tasks and duties. TA: (1) identifies valid training and non-training solutions to organization and individual performance deficiencies; (2) determines what is trained in the form of critical, collective, and individual tasks, and supporting skills and knowledge; (3) provides an accurate description of identified critical tasks; and, (4) provides a definitive performance standard that describes what constitutes successful organization and individual performance of the task. Based on the discussion above, FRA denies that portion of AAR's petition related to this issue and declines to make any changes to this portion of the final rule.

B. *Locomotive Alerters*

AAR's petition requests that FRA amend the alerter requirement that is contained in § 229.140(d) of the final rule to eliminate the lower bound for the alerter warning indication interval. The final rule requires that an alerter provide a warning indication at a frequency that is within 10 seconds of the amount of time that is calculated by the following formula: timing cycle specified in seconds = $2400 \div \text{track speed}$. According to AAR, its standard differs from the final rule because it establishes a maximum interval of approximately 120 seconds. The final rule requires a warning indication interval that could be much greater than 120 seconds when operating at speeds of less than 20 mph.

AAR states that alerter warning indications at intervals that exceed 120 seconds (nominal) at or below 20 miles per hour are incompatible with the existing AAR standard for alerters and that more frequent alerts will enhance safety. While limiting their discussion to speeds under 20 miles per hour, AAR then petitions for a rule change which would allow the alerter to be activated more frequently than the formula given in the regulation at all speeds. FRA denies the petition for speeds of 20 mph and above, and will retain the formula given in the final rule. Arguments made by AAR for a maximum interval of 120 seconds (nominal) at speeds below 20 mph have merit, particularly in light of the findings of the National Transportation Safety Board's (NTSB) investigation of the rear end collision at Red Oak, Iowa, on April 17, 2011. See NTSB Accident ID DCA11FR002, Operations Group Factual Report at page 6. In that accident, two lives were lost at a speed only three mph faster than the proposed dividing speed, and approximately seven seconds away from activation of the alerter. Although neither the formula in the final rule, nor the AAR proposed maximum interval of approximately 120

seconds, would have prevented the fatalities at Red Oak, the accident is an example of a variance of a few seconds of the timing of the alerter warning indication can make a difference, even at relatively low speeds. For speeds below 20 mph, FRA is partially granting AAR's Petition and revising the alerter timing to 120 seconds, with the same 10 second tolerance that is provided for in this section for all other speeds. The specific changes are discussed in the section-by-section analysis below.

C. *Remote Control Locomotives*

I. *§ 229.15(b)(4)RCL Conditioning Run*

AAR's petition requests that FRA clarify the RCL requirement related to conducting conditioning runs that are contained in § 229.15(b)(4) of the final rule. Section 229.15(b)(4) provides that: "[e]ach time an RCL is placed in service and at the start of each shift locomotives that utilize a positive train stop system shall perform a conditioning run over tracks that the positive train stop system is being utilized on to ensure that the system functions as intended." According to the AAR, its understanding is that FRA intended that: (1) an RCL must pass over only one transponder to ensure that the system is working; and, (2) that the conditioning run is required to be performed at the beginning of each shift, but not necessarily the first task that is performed by the RCL operator. However, AAR is concerned that the requirement could be misinterpreted to mean that a conditioning run is required: (1) over each and every track that utilizes a positive train stop system that could be utilized by an RCL during a shift; or, (2) at the beginning of every shift before any work is done.

FRA agrees that the existing final rule language could potentially be misinterpreted as stated by AAR. Such misinterpretations could lead to impractical results from an operational perspective. For example, at a hump yard where positive train stop is used, the requirement could be misinterpreted to mean that switching over the hump would have to cease while the conditioning run was being performed. As another example, in the same hump yard, the requirement could be misinterpreted to mean that when an RCL that is coupled to cars being moved over the hump when the previous shift ends with the job only partially complete (*e.g.* some cars are halfway up the hump), then the new RCL operator would have to perform a conditioning run prior to completing the hump move. To avoid these misinterpretations, FRA is clarifying the RCL requirement related to the conditioning run that is contained in § 229.15(b)(4) of the final rule as discussed in the section-by-section analysis below.

2. § 229.15(a)(12)(xii) RCL Audio Indication

AAR's petition also requests clarification of the requirement related to the audio indication of RCL movement that is contained in § 229.15(a)(12)(xii) of the final rule. This section requires that the operator control unit (OCU) shall be capable of providing an audio indication of movement of the RCL. According to AAR, all RCL's currently provide an audio indication of movement when they are moving via the locomotive bell. The AAR assertion that this audio indication complies with the requirement that is contained in § 229.15(a)(12)(xii), because the OCU controls the movement of the RCL and the OCU provides an audio indication of the movement of the RCL via the locomotive bell. In addition, the AAR expresses concern that this requirement could be

misinterpreted to mean that the OCU is required to produce an audio indication that emanates directly from the OCU, rather than from the RCL. FRA intended for the final rule to require the audio indication to emanate from the RCL as it is being operated by the OCU. A properly sounding locomotive bell is an acceptable example of an audio indication that emanates from the locomotive. The audio indication functions as a warning to people who are nearby the moving locomotive and not necessarily nearby the OCU. FRA also recognizes that the existing language could lead to misinterpretation, as stated in the AAR petition. Therefore, FRA grants AAR's petition related to this issue and agrees to clarify the language that is contained in § 229.15(a)(12)(xii) to identify the RCL as the source of the audio indication.

D. Locomotive Periodic Inspection and Mechanical Inspection

In its petition, AAR requests that FRA revise the periodic inspection requirement that is contained in § 229.23 of the final rule to make the 184-day interval optional. FRA believes that the 184-day interval is optional and does not believe anything in the final rule states otherwise. However, FRA's expectation is that the railroad will note on the FRA Form 6180-49A whether a locomotive is on a 92-day or 184-day inspection interval. The railroad must choose one inspection interval and stick with it until the inspection cycle is completed.

Section 229.23(b)(2) Daily Inspection by QMI

AAR's petition also requests that FRA modify the frequency of the daily inspection that is performed by a qualified mechanical inspector (QMI daily inspection)

that is contained in § 229.23 of the final rule. The final rule requires a QMI daily inspection to be performed every 31 days. According to the AAR, the final rule could require a QMI daily inspection within a few days before the next periodic inspection, which AAR states would include a QMI daily inspection, by standard industry practice. The AAR asserts that two QMI daily inspections within days of each other cannot be justified and recommends that the final rule be modified so that a QMI daily inspection is not required to be performed when a periodic inspection is due within 41 days of the previous QMI daily inspection, effectively permitting 10 days of flexibility. While recognizing that overly frequent QMI daily inspections could be required under the provisions of the final rule, FRA does not agree with the AAR's proposed solution of a variable interval for the QMI daily inspection. FRA believes it would be awkward and possibly confusing to implement a requirement containing variable intervals. Generally, the inspection requirements that are contained in the Locomotive Safety Standards do not have provisions for variable interval inspections, except in the case of out-of-service credit that provided for in § 229.33.

FRA's intent in the final rule is to require that a minimum of five QMI daily inspections be performed between 184 day periodic inspections. FRA recognizes that a 31-day interval provides little, if any, flexibility in scheduling the QMI daily inspections. For example, if the average interval for the first five QMI daily inspections is 30 days, only one day shorter than the maximum amount of time that is permitted by the requirement, then a sixth QMI daily inspection would be due on day 181, three days before the periodic inspection. To keep the inspection interval constant, and provide the

flexibility that the industry seeks, FRA is partially granting the AAR's petition on this issue and changing the QMI daily inspection interval to 33 days in this response. This will provide 12 days of potential flexibility in each periodic inspection cycle.

E. *Locomotive Cab Temperature*

The petitions of Honold and Lombardi request that the requirements contained in the final rule related to cab temperature be revised to require that air conditioning units be installed and operative in all lead locomotives. FRA declines to adopt this request for revision for several reasons. First and foremost is that there are several safety-critical systems or components that must take precedence over air conditioning on lead units. These include but are not limited to: an ability to control certain subsystems throughout the consist (See § 229.13); an air brake control system which functions as intended (See § 229.46); and, headlights and auxiliary lights which provide night vision for the crew and enhanced grade crossing safety for the public (See § 229.125). Adding air conditioning in locomotive cabs to the list of items which disqualify a locomotive from lead service could create power shortages, including preventing a trailing unit which is otherwise lead-qualified from being switched to the lead position when an en route failure of the lead locomotive could otherwise be remedied by that move.

Another major consideration was the difficulty of adequately measuring cab conditions under which air conditioning would be required. Disqualifying a locomotive from lead service on a day where ambient (un-conditioned) temperature in the cab is moderate would have no safety benefit. As pointed out in comments received in response to the NPRM from U.S. Army Joint Munitions Command, Transportation Division,

(Docket Number FRA-2009-0094-0018), available scientific research on human performance in hot environments has shown that it is not simply temperature (scientifically called dry-bulb temperature) but Wet-bulb Globe Temperature (WBGT) which must be measured. A rule based on WBGT would be exceedingly difficult to enforce, because the expense of the equipment required to make the measurement would mean that few people would be able to make reliable measurements.

Overall, the goal of this change in the Locomotive Safety Standards is to take a first step toward improving the temperature conditions in locomotive cabs. Maintenance of the air conditioners is currently required at periodic inspections. In the preamble to the final rule, FRA stated that it will monitor air conditioning maintenance performed by railroads to ensure that maintenance is being adequately performed. If FRA determines that the prescribed level of maintenance is insufficient to ensure the proper functioning of the air conditioning units, FRA will consider taking further regulatory action to address the issue. The issue of cab temperature is also being referred to the Railroad Safety Advisory Committee's Fatigue Management Working Group (which includes participants representing rail labor) for further study.

F. Preemption

PRM's petition requests that FRA provide its current position on the pre-emptive effect of the Locomotive Inspection Act (LIA). The pre-emptive effect of the LIA, to the extent that it was addressed by the Supreme Court in Kurns v. Railroad Friction Products Corp., 132 S. Ct. 1261 (2012), has been determined by the Supreme Court. FRA is in the process of fully considering the implications of the Supreme Court's decision in Kurns,

and FRA's application of the LIA in light of the decision. Moreover, FRA believes that this issue is outside the scope of the petitions for reconsideration of the Locomotive Safety Standards final rule. The final rule did not establish or modify any Federal requirements related to the pre-emptive effect of the LIA. As such, FRA denies PRM's petition on this issue and declines to further discuss the pre-emptive effect of the LIA in this rulemaking proceeding.

G. *Locomotive Diesel Exhaust*

The petition of AAJ requests that FRA clarify its preamble discussion of the locomotive diesel exhaust requirement that is contained in § 229.43. FRA believes that the preamble discussion related to locomotive diesel exhaust is clear and accurately reflects FRA's existing understanding and implementation of the requirement. The final rule does not establish or modify any requirements related to the locomotive diesel exhaust requirement. As such, FRA believes that the AAJ's request is outside the scope of this rulemaking proceeding. Thus, FRA denies AAJ's petition related to this issue.

III. Clarifying Amendments

A. *Recording AFM Calibration Date on the Blue Card*

Following the publication of the final rule, FRA is undertaking the task of updating the FRA Form F 6180-49A (blue card) to accurately reflect the requirements contained in part 229 as they stand after the Locomotive Safety Standards final rule has become effective. During this process, FRA determined that the blue card that is under development may be unclear regarding where the AFM calibration date should properly be recorded. The blue card, currently under development, contains a box labeled "AFM

calibration,” while § 229.29 requires that the AFM calibration date be recorded in the remarks section of the blue card. FRA intended for the calibration date to be recorded in the remarks section of the blue card only in the absence of a specific box labeled “AFM calibration.” When such a box exists, the AFM calibration date should be recorded in the specifically labeled box. When such a box does not exist, the AFM calibration date should be recorded in the remarks section. FRA is revising the language contained in § 229.29 to clarify this point to allow for entry of AFM calibration information in either place.

B. *Record of Defects and Repairs between Periodic Inspections*

FRA is amending the language contained in § 229.23(h) of the final rule to clarify the requirement. The final rule states that “[t]he railroad shall maintain, and provide employees performing inspections under this section with, a list of the defects and repairs made on each locomotive over the last ninety-two days.” This requirement is intended to ensure that an employee who performs an inspection that is required by this section is given the locomotive’s history of defects that were found during inspections, and repairs that were made to the locomotive, since the date that the last inspection that is required by this section occurred. The locomotive’s history will provide the employee with important information that will assist in the performance of a proper inspection. Prior to the final rule, periodic inspections required by this section were required to be performed at intervals not to exceed 92 days. As such, the record of the defects and repairs for the locomotive was required to be maintained and provided to appropriate employees for up to 92 days. Section 229.23(b) of the final rule modified the requirement to permit certain

locomotives to operate for up to 184 days between periodic inspections. For a locomotive that is permitted to receive a periodic inspection at intervals not to exceed 184 days, the record of the defects and repairs for the locomotive is required to be maintained and provided to appropriate employees for up to 184 days. Based on the rule contained in the final rule, FRA believes that the requirement could be understood to mean that all locomotives, including those that are permitted to operate for 184 days between periodic inspections, require only 92 days of records to be maintained and provided to appropriate employees. To clarify the requirement, FRA is amending the language to read as follows: “The railroad shall maintain, and provide employees performing inspections under this section with, a list of the defects and repairs made on each locomotive since the date that the last inspection required by this section was performed.”

C. *Duration of the RCL Audio Indication*

Section 229.15(a)(12)(xii) of the final rule requires that the RCL shall be capable of providing an audio indication of movement of the RCL. FRA believes that in order to function as intended as a warning to people that are nearby that the RCL that the equipment is moving, the audio indication must be a minimum of 3 seconds in duration. FRA believes that at this time all RCL units comply with this requirement as they are currently manufactured and that this timeframe is standard practice within the industry. Thus, FRA is clarifying the final rule in this document by specifically including that the audio indication last at least 3 seconds.

D. *RCL Remote Control Pullback Protection as an Example of a Positive Train Stop System*

FRA is clarifying the requirement that is contained in § 229.15(b)(4) of the final rule by modifying the language. The final rule states that “[e]ach time an RCL is placed in service and at the start of each shift locomotives that utilize a positive train stop system shall perform a conditioning run over tracks that the positive train stop system is being utilized on to ensure that the system functions as intended.” Section 229.5 of the final rule provides a definition for the term “Remote Control Pullback Protection,” (RCPP), which is a type of positive train stop system (PTSS). FRA included the definition in the final rule because it intended to provide RCPP as an example of a PTSS that is acceptable for the purposes of § 229.15. To clarify this point, the language is being amended to read as follows: “[e]ach time an RCL is placed in service and at the start of each shift locomotives that utilize a positive train stop system, such as remote control pullback protection, shall perform a conditioning run over tracks that the positive train stop system is being utilized on to ensure that the system functions as intended.”

This section is also being amended in response to petitions for reconsideration of the final rule. For a discussion of those changes, please see section (c)(1) of the Issues Raised by Petitions for Reconsideration.

E. *Removing Erroneous Internet Address that is Contained in the Electronic Recordkeeping Requirements.*

Section 229.20(d)(2) of the final rule contains an erroneous link to Westlaw. The Internet address has no significance related to the electronic recordkeeping requirements and was not intended to be included in the rule text. As such, to prevent any confusion, the Internet address is being removed.

IV. Section-by-Section Analysis

Section 229.15 Remote control locomotives.

FRA is modifying the language contained in § 229.15(a)(12)(xii) of the final rule to clarify that an RCL is required to produce audio indication of movement for at least 3 seconds and that the OCU must be capable of activating the audio indication of movement. FRA believes that in order to function as intended as a warning to people that are nearby that the RCL that the equipment is moving, the audio indication must be a minimum of 3 seconds in duration. This was not expressly stated in the final rule, but to provide additional clarity on the issue, FRA is expressly adding the 3 second duration to § 229.15(a)(12)(xii) in this response to petitions for reconsideration. In addition, the language contained in the final rule could incorrectly be read as providing that the OCU itself is required to produce an audio indication of movement. To avoid such a misinterpretation, the word “activate” is being added to § 229.15(a)(12)(xii) to read as follows “[a]ctivate the audio indication of movement that is located on the RCL for a duration of at least 3 seconds...” FRA believes that these changes clarify the final rule.

FRA is also modifying the RCL requirement related to the conditioning run that is contained in § 229.15(b)(4) of the final rule to clarify that: (1) an RCL must pass over only one transponder to ensure that the system is working; and, (2) that the conditioning run is required to be performed at the beginning of each shift, but not necessarily the first task that is performed by the RCL operator. The language contained in the final rule states that “[e]ach time an RCL is placed in service and at the start of each shift locomotives that utilize a positive train stop system shall perform a conditioning run over

tracks that the positive train stop system is being utilized on to ensure that the system functions as intended.” The modified language that is established by this response to petitions for reconsideration is as follows “[e]ach time an RCL is placed in service and at the first practical time after the start of each shift, but not more than 2 hours after the start of that shift, locomotives that utilize a positive train stop system shall perform a conditioning run over a track that the positive train stop system is being utilized on to ensure that the system functions as intended.” Adding the phrase “at the first practical time after...but not more than 2 hours after the start of that shift...” and changing the word “tracks” to “track,” add clarity to this requirement.

FRA is further modifying the language that is contained in § 229.15(b)(4) of the final rule to clarify FRA included the definition of RCPP in the final rule because it intended to provide RCPP as an example of a PTSS that is acceptable for the purposes of § 229.15. For a more detailed discussion of the change to this section please see section D of the Clarifying Amendments.

Section 229.20 Electronic recordkeeping.

Section 229.20(d)(2) of the final rule contains an erroneous link to Westlaw. The Internet address has no significance related to the electronic recordkeeping requirements and was not intended to be included in the rule text. As such, to prevent any confusion, the Internet address is being removed and the section will read as follows: [p]aper copies of electronic records and amendments to those records that may be necessary to document compliance with this part, shall be provided to FRA for inspection and copying upon

request. Paper copies shall be provided to FRA no later than 15 days from the date the request is made; and,....”

Section 229.23 Periodic inspection: general.

FRA is amending the language contained in § 229.23(b)(2) of the final rule to change the frequency of the QMI daily inspection from every 31 days to every 33 days. As noted in the discussion of AAR’s petition contained in section D of the Issues Raised by Petitions for Reconsideration above, FRA believes that the intent of the final rule is to require that a minimum of five QMI daily inspections be performed between 184 day periodic inspections. FRA recognizes that a 31-day interval provides little, if any, flexibility in scheduling the QMI daily inspections. For example, if the average interval for the first five QMI daily inspections is 30 days, only 1 day shorter than the maximum amount of time that is permitted by the requirement, then a sixth QMI daily inspection would be due on day 181, three days before the periodic inspection. To keep the inspection interval constant, and provide the flexibility that the industry seeks, FRA is partially granting the AAR’s petition on this issue and changing the QMI daily inspection interval to 33 days. This will provide 12 days of potential flexibility in each periodic inspection cycle.

FRA is also amending the language contained in § 229.23(h) of the final rule to clarify the requirement. The final rule states that “[t]he railroad shall maintain, and provide employees performing inspections under this section with, a list of the defects and repairs made on each locomotive over the last ninety-two days.” To clarify the requirement, FRA is amending the language to read as follows: “The railroad shall

maintain, and provide employees performing inspections under this section with, a list of the defects and repairs made on each locomotive since the date that the last inspection required by this section was performed.” For a more detailed discussion of the change to this section please see section B of the Clarifying Amendments.

Section 229.29 Air brake system calibration, maintenance, and testing.

To clarify the final rule, FRA is amending the language contained in § 229.29(g)(1) to indicate that the date of AFM indicator calibration shall be recorded and certified on the Form F6180-49A. Please see the preceding discussion in section A of the Clarifying Amendments for background information related to this modification.

Section 229.140 Alerters.

FRA is amending the language that is contained in § 229.140(d) of the final rule to establish a fixed interval for the alerter warning indication when operating at speeds below 20 mph. To make this change, FRA is revising the requirement for locomotives operating at speeds under 20 mph to 120 seconds, with the same 10 second tolerance that is provided for in this section for all other speeds. Please see the preceding discussion in section B of the Issues Raised by Petitions for Reconsideration for background information related to this modification.

Section 229.303 Applicability.

The language contained in § 229.303 is being modified to clarify that certain products are excluded from the locomotive electronics requirements. The language is being modified by replacing the phrase “placed in service” that is contained in §§ 229.303(a)(1) and (a)(2) with the phrase “fully developed.” Please see the preceding

discussion in section (A)(1) of the Issues Raised by Petitions for Reconsideration for background information related to this modification. In addition, FRA is extending the date for railroads and vendors to identify all products that are under development as identified in paragraph (a)(2) of this section to FRA from October 9, 2012 to February 9, 2013. The substantive requirement is not being changed, as the requirements that govern which products can be properly identified under paragraph (a)(2) of this section remain unchanged. Only the date by which the products must be identified and submitted to FRA is being changed.

Section 229.305 Definitions.

Section 229.305 of the final rule is being amended by removing the definition for the term “new or next-generation locomotive.” Please see the preceding discussion in section (A)(2) of the Issues Raised by Petitions for Reconsideration for background information related to this modification.

V. Regulatory Impact and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This action has been evaluated in accordance with existing policies and procedures and determined to be non-significant under both Executive Order 12866 and DOT policies and procedures. See 44 FR 11034; February 26, 1979. The original final rule was determined to be non-significant. Furthermore, the amendments contained in this action are not considered significant because they generally clarify requirements currently contained in the final rule or allow for greater flexibility in complying with the rule.

These amendments and clarifications are in response to commenters petitions for reconsideration and will provide greater flexibility in the implementation and enforcement of this final rule. The amendments modify the remote control locomotive provisions and also Subpart E. Both of these are not mandatory requirements to operate locomotives, and therefore will not cause a change in FRA's estimated costs in the final rule's regulatory impact analysis (RIA). In addition, there is an amendment that modifies section 229.140 for locomotive alerters. This amendment is in response to a commenter's petition and should improve compliance with the alerter requirement in the final rule. This change to the alerter timing interval below 20 mph would result in a modest cost saving to the industry, particularly in regard to the January 1, 2017, full implementation requirement because it makes more currently installed alerters compliant, thus reducing the number to be modified. FRA does not believe that the amount of potential savings warrants modification of the RIA. There are amendments to the periodic inspection requirements in section 229.23 which are also in response to a commenter's petition. The amendment will have minimal economic impact on the railroads that are able to use the final rule's 184 day periodic inspection provision. Any impact it will have, will serve to decrease the estimated costs in the final rule's RIA. The amendment to section 229.29 is not a change in the air brake system calibration, maintenance, and testing requirements but rather a change in where and how the calibration is recorded on the locomotive's blue card.

In summary, FRA has concluded that these amendments will have a minimal net effect on FRA's original analysis of the costs and benefits associated with the final rule. Hence, FRA has not revised the final rule's RIA.

B. Regulatory Flexibility Act and Executive Order 13272

To ensure potential impacts of rules on small entities are properly considered, FRA developed this action and the original final rule in accordance with Executive Order 13272 ("Proper Consideration of Small Entities in Agency Rulemaking") and DOT's procedures and policies to promote compliance with the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). Pursuant to the Regulatory Flexibility Act (5 U.S.C. 605(b)), FRA certifies that this action would not have a significant economic impact on a substantial number of small entities.

The amendments contained in this action that modify provisions for the use of remote control locomotives and will not impact any small entities. Most small railroads do not use remote control locomotives and the use of remote control locomotives is permissive and not mandatory. The amendments to the periodic inspection requirements in § 229.23 would not negatively impact any small entities. This is due to that fact that the amendments to this section should reduce cost for a railroad that has locomotives that can utilize a longer, i.e., 184 day, period inspection. In addition, most, if not all, small railroads currently do not have locomotives that would qualify to utilize the longer periodic inspection period. The amendment to § 229.29 is not a change in the air brake system calibration, maintenance, and testing requirements but rather a change in where and how the calibration is recorded on the locomotive's blue card. There is one

amendment on § 229.140 which adds a requirement to establish a “fixed interval” for the audible warning indication for locomotive alerters for speeds under 20 mph. This amendment will not impact any small railroad since many small railroads operate at speeds that do not require an alerter, and the amendment is granting a commenter’s request. Finally the amendments to subpart E relate to clarification on the requirements for new advanced electronic locomotive control systems, which would be found on new locomotives. No small railroads purchase new locomotives that would have these systems on them. Accordingly, because the amendments contained in this action generally clarify requirements currently contained in the final rule, FRA has concluded that there are no substantial economic impacts on small entities resulting from this action.

C. Paperwork Reduction Act

FRA has carefully reviewed agency amendments to certain sections of this final rule in response to petitions for reconsideration. There are no changes to any of the final rule’s information collection requirements and estimated burden published in the FR on April 9, 2012. See 77 FR 21312. These information collection requirements and associated burden were approved by the Office of Management and Budget on November 21, 2012, under OMB No. 2130-0004, for the maximum time period.

D. Federalism Implications

FRA has analyzed this rule in accordance with the principles and criteria contained in Executive Order 13132, issued on August 4, 1999, which directs Federal agencies to exercise great care in establishing policies that have federalism implications. See 64 FR 43255. This final rule will not have a substantial effect on the States, on the

relationship between the national government and the States, or on the distribution of power and responsibilities among various levels of government. This final rule will not have federalism implications that impose any direct compliance costs on State and local governments.

This final rule could have preemptive effect by operation of law under certain provisions of the Federal railroad safety statutes, specifically, the former Federal Railroad Safety Act of 1970 (former FRSA), repealed and recodified at 49 U.S.C. 20106, and the former Locomotive Boiler Inspection Act at 45 U.S.C. 22-34, repealed and recodified at 49 U.S.C. 20701-20703. See *Kurns v. Railroad Friction Products Corp.*, 132 S. Ct. 1261 (2012); and *Napier v. Atlantic Coast Line R.R.*, 272 U.S. 605 (1926).

E. International Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and where appropriate, that they be the basis for U.S. standards.

This action is purely domestic in nature and is not expected to affect trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States.

F. Environmental Impact

FRA has evaluated this action in accordance with its “Procedures for Considering Environmental Impacts” (FRA’s Procedures) (64 FR 28545, May 26, 1999) as required

by the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), other environmental statutes, Executive Orders, and related regulatory requirements. FRA has determined that this action is not a major FRA action (requiring the preparation of an environmental impact statement or environmental assessment) because it is categorically excluded from detailed environmental review pursuant to section 4(c)(20) of FRA's Procedures. See 64 FR 28547 (May 26, 1999).

In accordance with section 4(c) and (e) of FRA's Procedures, the agency has further concluded that no extraordinary circumstances exist with respect to this action that might trigger the need for a more detailed environmental review. As a result, FRA finds that this action is not a major Federal action significantly affecting the quality of the human environment.

G. Unfunded Mandates Reform Act of 1995

Pursuant to Section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, 2 U.S.C. 1531), each Federal agency "shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law)." Section 202 of the Act (2 U.S.C. 1532) further requires that "before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$140,800,000 or more in any one year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency

shall prepare a written statement” detailing the effect on State, local, and tribal governments and the private sector. The action will not result in the expenditure, in the aggregate, of \$140,800,000 or more in any one year, and thus preparation of such a statement is not required.

H. Energy Impact

Executive Order 13211 requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” 66 FR 28355 (May 22, 2001). Under the Executive Order, a “significant energy action” is defined as any action by an agency (normally published in the Federal Register) that promulgates or is expected to lead to the promulgation of a final rule or regulation, including notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking: (1)(i) That is a significant regulatory action under Executive Order 12866 or any successor order, and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. FRA has evaluated this action in accordance with Executive Order 13211. FRA has determined that this action is not likely to have a significant adverse effect on the supply, distribution, or use of energy. Consequently, FRA has determined that this action is not a “significant energy action” within the meaning of Executive Order 13211.

I. Privacy Act

Anyone is able to search the electronic form of any written communications and comments received into any of our dockets by the name of the individual submitting the

comment (or signing the document, if submitted on behalf of an association, business, labor union, etc.). See <http://www.regulations.gov/#!privacy>. Notice for the privacy notice of regulations.gov or interested parties may review DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477).

List of Subjects in 49 CFR Part 229

Locomotives, Railroad safety, Remote control locomotives.

The Rule

For the reasons discussed in the preamble, FRA amends part 229 of title 49 of the Code of Federal Regulations as follows:

PART 229 – [AMENDED]

1. The authority citation for part 229 continues to read as follows:

Authority: 49 U.S.C. 20102-03, 20107, 20133, 20137-38, 20143, 20701-03, 21301-02, 21304; 28 U.S.C. 2401, note; and 49 CFR 1.49.

2. Section 229.15 is amended by revising paragraphs (a)(12)(xii) and (b)(4) to read as follows:

§ 229.15 Remote control locomotives.

(a) * * *

(12) * * *

(xii) Activate the audio indication of movement that is located on the RCL for a duration of at least 3 seconds; and

* * *

(b) * * *

(4) Each time an RCL is placed in service and at the first practical time after the start of each shift, but no more than 2 hours after the start of that shift, locomotives that utilize a positive train stop system, such as remote control pullback protection, shall perform a conditioning run over a track that the positive train stop system is being utilized on to ensure that the system functions as intended.

* * * * *

3. Section 229.20 is amended by revising paragraph (d)(2) to read as follows:

§ 229.20 Electronic recordkeeping.

* * * * *

(d) * * *

(2) Paper copies of electronic records and amendments to those records that may be necessary to document compliance with this part, shall be provided to FRA for inspection and copying upon request. Paper copies shall be provided to FRA no later than 15 days from the date the request is made; and,

* * * * *

4. Section 229.23 is amended by revising paragraphs (b)(2) and (h) to read as follows:

§ 229.23 Periodic inspection: general.

* * * * *

(b) * * *

(2) At least once each 33 days, the daily inspection required by § 229.21, shall be performed by a qualified mechanical inspector as defined by § 229.5. A record of the

inspection that contains the name of the person performing the inspection and the date that it was performed shall be maintained in the locomotive cab until the next periodic inspection is performed.

* * * *

(h) The railroad shall maintain, and provide employees performing inspections under this section with, a list of the defects and repairs made on each locomotive since the date that the last inspection required by this section was performed;

* * * *

5. Section 229.29 is amended by revising paragraph (g)(1) to read as follows:

§ 229.29 Air brake system calibration, maintenance, and testing.

* * * *

(g) * * *

(1) The date of AFM indicator calibration shall be recorded and certified on Form F6180-49A.

* * * *

6. Section 229.140 is amended by revising paragraph (d) to read as follows:

§ 229.140 Alerters.

* * * *

(d) Alerter warning timing cycle interval shall be within 10 seconds of the calculated setting utilizing the formula (timing cycle specified in seconds = $2400 \div$ track speed specified in miles per hour). For locomotives operating at speeds below 20 mph, the interval shall be between 110 seconds and 130 seconds.

* * * * *

7. Section 229.303 is amended by revising paragraphs (a)(1), (a)(2), and (b) to read as follows:

§ 229.303 Applicability.

(a) * * *

(1) Products that are fully developed prior to June 8, 2012.

(2) Products that are under development as of October 9, 2012, and are fully developed prior to October 9, 2017.

* * * * *

(b) Railroads and vendors shall identify all products identified in paragraph (a)(2) of this section to FRA by February 9, 2013.

* * * * *

8. Section 229.305 is amended by removing the definition for the term “new or next-generation locomotive control system.”

Issued in Washington, DC, on December 7, 2012.

Joseph C. Szabo
Administrator.

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